PRESERVATION

OF THE

TEETH

INDISPENSABLE TO

COMFORT AND APPEARANCE,

HEALTH AND LONGEVITY,

BEING A NEW EDITION

OF

DENTAL PRACTICE,

BY

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PREFACE.

HAVING been a member of the Royal College of Surgeons in London, and in active practice as a Dentist, in my present residence, for upwards of twenty years, it has for some time been my intention to communicate the results of my experience. I propose, at present, to confine my observations to a few of the more important subjects belonging to Dental Practice. In these observations I shall notice more particularly the indispensable qualifications of the Surgical and Mechanical Dentist, and the recent unexampled increase of empiricism in the practice of the art. I shall then proceed to notice the nature and extent of the duties of the Surgeon-Dentist, in the second and third dentitions, and in the regulation and management of the teeth; the present absurd and destructive practice of filing and picking holes in the teeth; the treatment of toothache; the third dentition; the importance of artificial teeth, and the philosophical principles upon which

they are formed; the extraction of teeth, and the extracting instruments and lancets of my own invention*.

In this edition I have entered more fully into the qualifications of the dentist. I have endeavoured to dissuade the mechanical dentist from all attempts at quacking in the surgical department, by showing the absurdity of such conduct, and the impossibility of his doing anything but mischief to himself and patients by false pretensions in that line. I have also pointed out the impropriety of the mere surgeon-dentist endeavouring to supply artificial teeth. Nothing has degraded the profession and debased the character of individuals so much, as their obstinate perseverance in this fraudulent proceeding; and the line of rectitude once overstept, *mal-practice* prevails in all its hideousness;—filing, picking holes in the teeth, and the havock made in the mouths of children for the sake of present and prospect of future fees, have been the consequences. The barrier of respectability having been thus destroyed by those whose duty it was to uphold it, the profession has been overwhelmed with quacks. The wretched mechanical quackery of surgeon-dentists was seen through and imitated by needy adventurers, and the nucleus thus formed, has increased in magnitude and deformity.

I have called the attention of ingenious mechanics to

* These instruments have been honoured by the approbation of the Medical Society of London, and the Medal of the Society of Arts. See their Vol. LII. 1839.

the subject, and sketched out such an education as my experience suggests to be best calculated to form a proper mechanical dentist. The abilities of such dental artists would soon render them respected, at least by their patients; and, if real merit should ever become fashionable, quackery would cease.

I know it is expected that I should make some observations on the charges of dentists. There are real and adventitious circumstances that affect these charges. The works of art are of slow production, because, emanating principally from the head, they require much time and study; and if real artists are not liberally remunerated for their labours they perish. Artists and works of art cannot be estimated by mercantile rules; they can only be appreciated and understood by enlightened minds. The intrinsic worth of their productions is what really ought to regulate the charges of artists in general.

The artificial state of society and the follies of fashion, that create and foster empiricism, and despise all talent unaccompanied by the quackery of ostentation, unavoidably affect the charges of artists. Hence, men of real abilities are either condemned to obscurity, or compelled to imitate the show and pomp of the quack, which, without benefiting the artist, or improving his works, greatly enhances their price; and, from this cause, artists of the greatest merit are often the least known. An impudent *ignoramus* will often contrive to force himself into more

notoriety in a few months, than "modest merit" can attain in a lifetime.

With regard to the cheap artificial teeth offered to the public by sham artists, such productions may be classed with razors at eighteen-pence per dozen, vended by persons of the same *caste*. Cast-iron razors, and artificial teeth on metal plates, which are not only useless but injurious, are dear at any price. But, unfortunately, in looking at the other extreme, we too often see work of the worst description, for which the highest price has been charged, by sham artists of another class, who ought as *honest men* to confine their practice entirely to surgery.

Nothing but a wholesome influx of clever dental artists, prepared in a rational manner for the exercise of the profession, can correct these abuses; and when that takes place, and not till then, will the public be well and cheaply served.

25, *Old Burlington Street,*
London.

DENTAL PRACTICE.

Qualifications of the Dentist.

The practice of this profession is naturally divided into two branches, the surgical and the mechanical, which are as distinct from each other as the practice of a surgeon is from that of a watchmaker.

The surgical part may be tolerably well performed by any surgeon, and many active practitioners, in country places, become expert surgeon-dentists. It would be well for their patients were they content with such services; instead of getting their teeth destroyed by quack dentists, who cover their ignorance and presumption with the cloak of mystery.

The Mechanical department is not so easily filled up. Owing to the false system that has hitherto prevailed, proper mechanics have not been brought into the profession. The quackish use that has been made of gold and silver plates, in the construction of artificial teeth, has naturally led to the employment of a class of mechanics, who, generally speaking, are inferior workmen. In point of accuracy of construction, and delicacy of execution, the really clever clock and watchmaker, he whose art has been carried so far as to place a watch in a ring, and music in a seal, must far surpass other mechanics. Such artists as these,

"call'd in to play their part, would show the glory of the art."

If really talented mechanics would direct their abilities to the making of artificial teeth, on their *own account*, unhampered and unannoyed by the false models and mystifications of ignorant pretenders, they would not only confer a great benefit on the public, but raise themselves from the depressed state to which they have been reduced by mere shopkeepers; and would, moreover, materially assist in dispersing the swarm of ignorant and rapacious swindlers, that at present incumber the dental profession.

Unfortunately dental practitioners seem to think it absolutely necessary that they should assume both the surgical and mechanical departments, whether *qualified or not*, and to this absurd proceeding there is scarcely an exception. Hence the surgical portion of the profession, instead of sustaining their dignity, have been the first to quack and botch in the mechanical department, rendering it not only contemptible but injurious; while the mechanical portion retort by styling themselves "surgeon-dentists." This is a condition of things much to be lamented, and is the cause of the confusion that now reigns in the profession; it is this cause that deprives the qualified surgical and mechanical portions of the profession, of that unity of mind necessary for forming themselves into associations for their own and the public protection, against the overwhelming dental quackery of the present day. Such is this confusion that we may see a regularly educated surgeon wasting his time and injuring his fame in pitifully fastening a plate of metal as a basis for artificial teeth, in the mouth of his miserable patient, when he knows, or ought to know, that the metal will keep up a continual galvanic action in the mouth and throat; and ultimately destroy every tooth with which it comes in contact. On the other hand, there are practitioners, with

no other qualification than their own presumption, (as the College List will show,) in full practice as surgical dentists, reaping that field which legitimately belongs to the surgeon, who, in his folly, abandons it a prey to quacks.

The question is often mooted, what can induce a mere surgeon-dentist to quack in the mechanical department? Is it cupidity, or vanity?—It is certainly dishonesty and folly; as much so as it would be in a watchmaker to assume the profession of a surgeon. It can scarcely be supposed that want of business in his own line compels the surgeon-dentist to intrude upon the mechanic, for the public requires, or seems to think it requires, a very frequent attendance on the dentist: how else could so many quacks exist, who appear to be doing great business as surgeon-dentists? In fact the quacks are far more successful in their inroads upon the surgical department than the surgeons are in their invasions on the mechanic.

We have physicians, surgeons and apothecaries, and the public derives great advantage from this division of the medical profession:—why not surgical and mechanical dentists? In fact, it is neither necessary nor desirable in great cities, that the same person should practise in both branches, any more than in the other departments of the healing art. The line of distinction is as obvious as it is seriously important; the surgeon is called upon to operate on parts endowed with the living principle, and to this the mere surgeon-dentist should strictly limit his practice; whereas the operations of the mechanical dentist should be strictly confined to inanimate matter, for the moment he goes beyond this he wanders out of his depth. It is impossible that an empiric can ever have a proper conception of what is termed the living principle; which is the study of the whole life of a medical man, whose mind is

continually liable to be burdened not only with the *fate* of his patient, but with that of the patient's family; and this sufficiently accounts for the serious and thoughtful aspect of medical men in general.

The care of the teeth formed a distinct branch of the medical profession among the ancient Egyptians; and there can be little doubt, that a people so ingenious would invent and appreciate the use of artificial teeth, which were afterwards so common among the Romans that it furnished a subject for raillery to their satirical poets. The Dental art, as a distinct profession, in Britain, is only about fifty years old; and, although incongruities and abuses are apt to attend the infancy of all undertakings, yet the public of the present day has a right to expect the advantages of maturity in this art, from the strong claims its patrons have on the gratitude and fair-dealing of its professors, to whom it has been excessively liberal. From mere quacks, who are neither surgeons nor mechanics, of course no reform can be expected, any more than from swindlers in general; *they* will continue to work their mischief until the liberality of the public is guided by more discrimination. As all successful reforms must be begun at home, let the respectable portions of the profession, surgical and mechanical, do their duty honestly, and trust to the growing discernment of the public for the result. Let those who are surgeon-dentists regulate their practice accordingly, those who are mechanical dentists do the same, and such as are *bona fide* mechanics, as well as surgeons, practise as general dentists, or as their inclination may prompt,—and thus quackery will not only be put out of countenance but circumscribed in its sphere of action.

As it is evident that only a duly qualified surgeon is com-

petent to act as a surgeon-dentist, and that an experienced practical mechanic, only, can succeed as a mechanical dentist, so it is equally dishonest for the mere surgeon to assume the mechanical department, as for the mechanic to play the quack in the surgical department; indeed there is a much greater distinction between them than is commonly supposed. It is only when the mechanic has superadded the qualification of surgeon, that he may legitimately assume the whole range of the profession of a dentist with credit to himself and advantage to his patients.

The mechanical must always precede the surgical education; for, it has been observed, that he who is not an expert mechanic at the age of twenty, will never afterwards be able to acquire the mechanical dexterity that is necessary for the fabrication of artificial teeth; whereas, in the acquirement of surgical knowledge, so much more serious thought and riper judgment are requisite, that the student reaps comparatively but little benefit from his studies before that age. Hence a mechanic may become a surgeon, but he who is first a surgeon can never afterwards become a mechanic.

It would appear, however, that if a surgical education be not acquired in early life, it cannot afterwards; else many quacks, whose impositions have proved successful in a pecuniary point of view, would gladly obtain the respectable designation of surgeon. This is further corroborated by the anxiety which they often evince to give their sons a regular surgical or medical education; thus showing how keenly, though secretly, they feel their own degradation, even in the midst of successful imposture.

Although a mechanical dentist ought to be a first-rate workman, yet the work itself is not of that nature which would ever *produce* a workman. As a physician must

aequire a thorough knowledge of anatomy before he can practise medicine, so must a mechanical dentist acquire his mechanical dexterity before he turns dentist, or he will ever remain a "botch." One reason of this is, that the workers in comparatively soft materials do not make their own tools, the fabrication of which is the most essential part of the education of a mechanic. The workers in steel and other hard metals make the greater part of the tools they use, by which means they become critically acquainted with the temper and other properties of those that best suit their peculiar mode of working; and the shades of difference in this respect are so nice, that few workmen can use the tools of others without injuring them.

An employment like clockmaking practically exercises all the laws and principles of mechanics, and thus, clockmaking is to the watchmaker and mechanical dentist, what anatomy is to the surgeon. Without it the watchmaker can never rightly understand his business, and consequently can never become a sound workman. Watchmaking, which is clockmaking in miniature, requires such anxious care and exquisite execution of minute parts, that the making of artificial teeth would appear comparatively coarse work to a talented clock and watchmaker; all the practical knowledge and mechanical dexterity of a clever general workman, as a clock and watchmaker, is requisite for, and can be applied to, the making of artificial teeth; and thus a watchmaker may be a dentist, though a dentist cannot be a watchmaker. It must not be understood, however, that every watchmaker is an Earnshaw, or fit to become a dentist. None but a genius and an enthusiast will ever shine in either character.

As health or indisposition, comfort or pain, may be the

result of their performances, it is evident that dental artists should be the first mechanics in the kingdom. The importance of their labours demands this, and the liberal price paid for their services should command it. To the ingenious the work will be delightful from its constant variety, which calls into action all the inventive and mechanical faculties, and affords them scope. And although the making of artificial teeth has been hitherto (with very few exceptions) carried on as a trade by rapacious pretenders, yet it is not a *trade*, but an *art* of a high order, and as such it cannot be performed by proxy. Artificial teeth cannot be "got up" even by clever artists, without seeing the person to whose mouth the work is designed to conform, and the functions of which it is intended to assist; as well might an artist be set to paint a portrait without being permitted to see the original. Like other artists the mechanical dentist must execute all, or very nearly all, the work with his own hands, or he never can, nor ought, to succeed as a dentist.

The increasing demand for artificial teeth opens a rich field for the enterprise and encouragement of ingenious mechanics, particularly clock and watchmakers; and young men brought up in the country as general workmen, will always possess a decided advantage over those bred in large towns, where they generally learn but one branch of watch-work, which is very seldom preceded by clock-making, and consequently they are very little better than *automata*; parents and young men themselves should endeavour to remedy this fundamental defect in the "division-of-labour education," which renders them liable to be thrown out of employment by every alteration in their business, and unable to turn their hands to anything else.

I shall conclude this subject with a sketch of what I should consider to be a proper education for a mechanical dentist.

A boy at the age of twelve years with such a development of faculties as clearly indicates a "mechanical genius," should be placed in a clockmaker's shop till the age of seventeen; if the work carried on in the shop be of a general or mixed nature, which is commonly the case, and if many men are employed, so much the better, provided the principal part of the work done be clockmaking. From the age of seventeen to nineteen or twenty he should be employed at watch-work, either repairing or finishing, in order to "fine down his hand," so that he may never afterwards experience any difficulty with work on account of its minuteness.

Having now, it is presumed, acquired mechanical knowledge and manual dexterity, he may commence the making of artificial teeth under the best instructor he can procure; and if the education of the dental preceptor has not been equal to that of the pupil, the latter will soon surpass his master.

If the surgical is intended to be added to the mechanical education, his anatomical and other surgical studies may be commenced simultaneously with those of the dentist, without prejudice to either, for they will assist rather than retard each other. At this period the beauties of the interesting field that opens upon the ardent mind of youth may be experienced but cannot be described. At the age of twenty-five his surgical knowledge may be so complete as to procure his admission as a member of the College; and, when a few years of experience in the actual practice of his profession have given him the ease and confidence attendant on ability, he will be able to look back with

satisfaction on the progressive steps by which he gained his knowledge and present eminence.

A young man of genius and sufficient enthusiasm for the task, may, by his own exertions, acquire the above education, including the surgical part, without any assistance from parents or friends. I mention this for the encouragement of merit, knowing it to have been achieved with comparative ease. Similar spirits may aspire to the same honour. Self-acquired advantages are at once the most honourable and valuable to the possessor.

Dental Quackery.

The great number of Adventurers who have lately assumed the character of dentists, without being either surgeons or mechanics, induces me to make some observations on the increase of empiricism in this profession*.

The greatest mischief inflicted by quacks is the odium and distrust their mal-practices bring upon the profession they invade. Scarcely a week passes in which I am not consulted by persons who have been entrapped, by some artifice, into the hands of an empiric, and made to pay for receiving an injury; and as false delicacy on the part of the sufferers precludes all application for redress, the impostor continues his career in security.

These dental destructives undertake to fasten loose teeth from "whatever cause arising," which is the same thing as offering to restore the dead to life! for the teeth

* The London Directory contains the names of upwards of one hundred and twenty individuals calling themselves Surgeon-Dentists, a large majority of whom are said to be Jews, while the List of the Members of the Royal College of Surgeons reduces the number to seven. This List, which is generally in the hands of every surgeon, may be consulted for the purpose of ascertaining what Dentists are really Surgeons.

are never much or permanently loose until their vessels have perished, and they are undergoing the expelling process of exfoliation and absorption as dead matter.

Empiricism seems to be the same in all ages, for, like their ancient prototypes, modern quacks affect great style and pomposity, publish books, &c. They also circulate prospectuses of real or imaginary books, purporting to be written either by themselves or other persons; and in these publications the impostors snugly praise themselves. A BOOK is "got up" in the name of quack A, in which the writings of John Hunter and other eminent physiologists are freely and largely borrowed by way of ground-work, and the rest of the book filled up with such quackery as is supposed best adapted to gull that *class* of the public selected for prey. Another book is got up in the name of quack B, an accomplice, containing liberal quotations from book A, in which the writings of Hunter and others are made to appear as those of quack A, whose peculiar putty for stopping hollow teeth, &c., is duly and largely praised; great care being also taken to style quack A, a *gentleman*.

These puffs, (containing the usual quantum of fictitious cases,) although things of rote, abundantly vague, and occasionally absurd, are nevertheless very mischievous, in misleading the portion of the public unable to discriminate on such subjects without the help of medical advisers.

That certain persons are born with particular propensities is forcibly illustrated in the manifestations of uncontrolled presumption displayed by some individuals, even in the lowest grades of society, who are destitute of all claim to superiority over their fellows; but who, having accomplished the easy task of deceiving themselves, pass the rest of their lives in conflicting efforts to impose on others this

belief and acknowledgment of their self-importance. This is the state of mind, of all others, in which empiricism takes deep and permanent root. It is the temperament that produces the peculiar and obtrusive enthusiasm which distinguishes the genuine empiric, and is the cause of his morbid activity of mind and body; for a quack has to sustain far more mental exertion than a legitimate practitioner; and, although cunning and cupidity are always component parts of his constitution, still it is the irritable enthusiasm that forms the chief feature by which he is characterised.

To such persons the task of *creating themselves* surgeon-dentists, with the inspired power of writing on the subject, is very easy; for their contempt of the public understanding and their usurpation of the profession, being grounded on the ignorant conceit of self-sufficiency, the inaptness of their previous habits and occupations for such a line of practice never disturbs their thoughts.

It has been often observed, that the lovers of the marvellous will always patronise quackery, and many say, "if people will be deceived, let them be deceived." The same may be said of *fortune-telling*, the most palpable of all self-delusions, yet experience has shown the propriety of protecting the weak and the credulous against the snares of the cruel impostor, and of making him amenable to the criminal laws.

To the medical profession collectively is entrusted the care of the general health, which must include the detection and exposure of empiricism, for the purpose of removing its baneful influence on the public, whose only sure guide is the direction of medical advisers, both with regard to what ought to be done, and who should do it; and it cannot be a matter of indifference to a truly learned and

scientific body, to see even the most remote ramifications of the profession usurped and degraded.

In the last century, when a person lost a tooth, even in the front of the mouth, the art of repairing such a deficiency being then scarcely known, or even thought of, the space remained vacant; and although the adjoining teeth were weakened by the want of lateral support, yet most persons retained through life a good and useful portion of them. When such an accident now occurs, and the person seeking a remedy for his deficiency has the misfortune to fall into the hands of one of the unprincipled quacks now so numerous, he is supplied with a tooth (most likely of miraculous composition) which the empiric fastens to the adjoining teeth, perfectly aware that such fastening will destroy them. When this is accomplished, the patient is next supplied with a piece of three teeth, which is soon followed by the like result; and, if the sufferer has patience to go on, he is supplied with pieces more extensive in proportion to the havoc made in his teeth by the fastenings of those which are artificial. These remorseless botchers frequently destroy sound teeth by filing openings between them for the purpose of introducing the destructive hooks and clasps attached to their artificial teeth.

As there unfortunately exists so strong a repugnance in most persons either to ask or to give advice on the supposed delicate subject of artificial teeth, it becomes the imperative duty of the regular medical practitioner to interpose with his advice and counsel, to save his patient from falling into the destructive hands of quacks.

It is an unfortunate circumstance for the public, that the use of artificial teeth is considered by most persons of so delicate a nature, as to require concealment. When a person finds it requisite to have his loss of teeth supplied,

it is then that he feels the difficulty of selecting an artist capable of accomplishing his wishes, yet the fear of exposing his loss prevents him from asking (what perhaps the *self-same fear* prevents his friend from giving) the important information; and so, unadvised, and with the chances so much against him, it is no wonder if he ultimately become a prey to the pretenders who (calling themselves dentists) have lately usurped the profession, for the practice of which their previous habits and occupations had not in the least qualified them.

When a person has suffered imposition and disappointment, he is apt to conclude that there is nothing better to be obtained, and is deprived of the very comfort which perhaps his intimate friend enjoys in secret. This serious grievance can only be remedied by those who have had their losses supplied to their satisfaction. Could *they* prevail upon themselves, in justice and humanity to their suffering friends, to make known the source from which they derived *their* comfort, ignorant and pompous quacks would soon cease to exist. There are, happily, a few generous exceptions to this restraint of secrecy in persons, who, setting selfishness aside, consider it a duty which they owe to their friends, and the artist who has laboured successfully for them, to lose no opportunity of making known the practitioner from whom they have derived the benefit.

In selecting a surgeon-dentist the College List will be found a safe guide. And in choosing a mechanical dentist, all who style themselves Surgeon-Dentists* should

* The most noisy of the dental quacks seem of late to have grown desperate; and, by publishing their *charges*, have unwittingly let the public into the secret of the true value of their services.

The main efforts of the quacks are now directed to the procuring of pu-

be avoided as cheats, unless their names appear in the list of surgeons. A really talented mechanical dentist would designate himself as such, and scorn the mean idea of appearing in false colours. The mechanical is quite as respectable as the surgical department, and, in some respects, much more important; for every surgeon is, more or less, a surgeon-dentist; but scarcely any surgeons, and very few mechanics, are capable of acting as mechanical dentists.

The Defective State of the Teeth *of the present Day, compared with that of the last Century.*

In the higher ranks of society, it is scarcely possible to find a person of the age of twenty-four, who has not lost some teeth, and so many of the remainder are stopped with gold, that their mouths have some resemblance to the window of a jeweller's shop. I am often waited on by elderly ladies with their daughters; the mother has often excellent teeth, but the daughter is as often half toothless. The mother eagerly inquires the cause of the teeth being so generally defective now-a-days, compared with what they were forty or fifty years ago, when the care of them was little thought of, and dentists scarcely known, except a few tooth-extracting barbers, and observes, that it seems a hard case that teeth should suffer in proportion to the care bestowed on them.

I can only answer to this, that, within the same period, the improvements in medical and surgical science have

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pils and partners, or rather premiums, for which they undertake to instruct their dupes in a profession of which they are themselves ignorant. The number of bungling quacks will increase or diminish in proportion to the success of this fraud on "Parents and Guardians."

been so great, that many diseases, always dangerous and often fatal, are now regarded with comparative indifferenee. But, in these cases, the enlightened portion of the public has appreciated the labours of its benefactors, cheered them onwards with its countenance and support, and wealth and honours have in many instances been the justly merited rewards of their philanthropic toils.

But while the upper ranks have taken a lively interest in the discoveries and improvements in medical and surgieal seienee, they seem to have altogether overlooked the dental department, or treated it as a profession too trifling to require serious eonsideration, and consequently have got into the habit of submitting their teeth to the operations of persons whose ignoranee and incapacity to perform what they undertake must be apparent on the slightest reflection. So far from eomprehending what ought to be the qualifieations of a dentist, the public seems never to have given the matter a serious thought, as if it were a profession which any person might assume at pleasure, which indeed has been very eustomary of late; and, provided that he be a person who is supposed to be *fashionable*, his fitness for his profession is never questioned.

So long, therefore, as people will plaee themselves in the hands of empirical dentists, it must be expected that the teeth will prove much more defective than they were before this eustom prevailed.

Medieal men are mueh surprised at the quantity of work the dental quacks have chalked out for themselves. No mouth ean eome amiss to them—on the most perfeet set of teeth they will contrive to work some misehief, for the sake of making a charge. Many young persons are in the habit of attending the dentist from a mere feeling of vanity, when no real necessity exists for his serviees; and the

melancholy fact is but too evident, that the teeth of persons in genteel society in the present day, suffer more from "over doing" than they would from total neglect. This is mainly, if not entirely, to be attributed to the malpractices of dentists, particularly to the iniquitous system of filing and picking holes in the sound teeth, or the comparatively sound teeth, of young persons, for no other apparent purpose than that of affording themselves the opportunity of plugging up these holes of their own making. In the hollows of the grinding surfaces of the side or molar teeth, some dark specks are seen, or supposed to be seen; the patient is gravely told that these specks will degenerate into holes, to prevent which they must be dug out, by way of eradicating the disease, and the cavities thus formed stopped with gold. So a hole is to be made in the tooth to prevent the tooth from making a hole in itself: poor comfort this for the sufferer! In either case, the tooth is doomed, and the mouth rendered galvanic by the presence of the metal, as in the case of artificial teeth on metal plates. A slight disorganization of the enamel frequently takes place without occasioning any cavity or loss of substance; in this state it imbibes colouring matter, and presents a brown or dark spot, which, if not excited and aggravated by the employment of the file and other instruments of destruction, may remain stationary for life, and the tooth perform its functions without pain or inconvenience; but, unfortunately for the confiding patient, certain dentists perceive in these specks *fees for stopping*; and if the victim be young (which is generally the case), ask him, at the age of forty, what became of such teeth, and what he endured while he struggled to retain them? My limits do not admit of enlarging on this head at present further than to observe, that, preposterous as the practice may

appear to simple minds, it is almost universal with dentists of every grade.

If people of fashion would examine their teeth, and those of their offspring, and compare them with those of their parents, they would be convinced of the destructiveness of the present system of fashionable quackery.

Although I fully appreciate the *real* improvements of the present day; yet I am constrained to admit that the teeth were far better, when the attentions of the "family doctor" were justly considered all-sufficient for the care of the children's teeth. It is in the mouths of children that irretrievable havoc is made, and deformities produced; it is there that mal-practice sows the baneful seeds of the "food it feeds upon." The best proof of this is seen in the comparatively sound state of the teeth of persons in humble society, which are happily exempt from the mal-practices of fashionable dentists.

Filing the Teeth.

An ignorant and barbarous practice has for some time prevailed of working a file up between the teeth of young persons, under the senseless pretence of freeing them from lateral pressure; but as it is to this pressure that the teeth owe their mutual support, so their strength and durability depend upon it. A large proportion of those to whomI have supplied artificial teeth attribute the decay and loss of their own teeth to this injurious practice. The main point in such cases seems to have been entirely lost sight of, namely, the age of the patient. The teeth of old people are often in a state of insensibility, but the case is very different with those of young persons; if the enamel of *their* teeth be once broken by the file or by accident,

pain, caries, and the loss of such teeth, often follow in rapid succession.

When the teeth are separated, their interstices become clogged up every time the owner eats, and cannot be cleaned by the tongue as when the teeth remain in contact: and when the separation is produced by filing, their morbid sensibility allows no rest till the person thus mutilated has had recourse to the tooth-pick after every meal. No person who constantly uses the tooth-pick will retain his teeth to old age. Those whose teeth are close together, as nature generally places them, seldom have occasion for this instrument; and the humane Dr. Buchan always recommended the substitution of the tooth-brush for the tooth-pick*.

When the teeth of young persons are thus rendered painfully sensitive, they may almost be said to have lost the use of them, and they generally prefer swallowing their food without mastication, to avoid the uneasiness produced by the process. When reduced to this miserable condition, they must expect to be in the hands of the dentist the remainder of their lives.

The absurd and mischievous theory that teeth may be filed and cut away with impunity, if the central cavity be not penetrated, must have been invented to reconcile persons to the double action of galvanism and friction, caused by the employment of metallic plates in the cheap and worst construction of artificial teeth. Persons advanced in life complain of the pain and loss of teeth they suffered by the gold plates wearing away the substance, and ultimately drawing out the teeth to which they were attached.

The only case that justifies the employment of the file

* A pair of watchmaker's tweezers is a handy instrument for drawing particles of food from between the teeth without hurting the gum.

is where *caries* has commenced on the side of a tooth next to a sound one. The carious portion may be filed away to prevent the lodgment of extraneous substances in the decayed part, and to remove the contact of the adjoining tooth; or where two adjoining teeth are carious, the same practice may be pursued. The wanton barbarity of filing between the sound teeth of young persons on the absurd pretence of freeing them from lateral pressure, and making room for the tooth-pick, is so monstrous, that nothing but the knowledge of the fact that it is of daily occurrence could render it credible.

Caries never takes place on the cutting edges of the front teeth, nor do I think that it ever begins on the points in lateral contact; for it is but a very small portion of the front teeth, near their cutting edges, that are in actual lateral contact with each other. The caries uniformly commences about the middle, and more frequently nearer the necks than the points of these teeth; and although the disease may *extend* to the points in lateral contact, yet unless we can trace the original seat of the malady to these minute points, we must look for some other cause than the empirical suggestion of *lateral pressure*.

Any person may convince himself of the absurdity of lateral pressure being prejudicial to the teeth, by examining the mouth of an aged person, whose remaining teeth will be found to be the front teeth of the lower jaw. If only one tooth remain, it is almost certain to be one of these, and most likely a canine tooth. Now the front teeth of the lower jaw (the smallest and weakest in the mouth) are the only teeth subject to lateral pressure, particularly when the loss of the side teeth allows the upper front ones to close with all the force of the jaw on the outside of the circle formed by the lower front teeth, by which they are pressed

compactly together, and form a union of strength, like the members of any other arch, by lateral pressure, or lateral support, (for the terms in this instance are synonymous,) sufficient to enable them to dig into the substance of the upper teeth, to push them forwards, and ultimately to expel them from their sockets, and remain the last teeth in the mouth; and all this they are enabled to accomplish by the benefit of lateral pressure.

When the teeth have not been subject to external violence, or the baneful effects of certain medicines, the empirical attempts to restore their loss by means of metallic plates, and such methods as require support from the natural teeth, (which always augment the original deficiencies,) the progress of their decay and loss generally commences with the grinders; and when so many of these are lost as to allow the *front teeth* to meet in mastication, the upper ones are soon destroyed by their opponents in the lower jaw as before described. Nineteen persons out of every twenty who have lost most of their teeth by what is called the decay of nature will confirm this account of the manner in which they lost them.

First Dentition.

The treatment of children during the process of teething belongs exclusively to the medical practitioner. It requires long experience and consummate skill to employ those prompt, yet cautious measures, which are called for by the alarming symptoms occasionally arising in children of irritable habits, and susceptible of inflammation. These measures, being quite out of the sphere of a dentist's practice, I shall omit, and leave their consideration in the hands of those to whom the treatment of infantile diseases legi-

timately belongs, merely observing, that the neglect of appropriate and efficacious remedies, local and general, is often followed by fatal consequences.

Second Dentition.

The first, or milk-teeth, should never be extracted, unless an absolute and evident necessity exists for making room for the coming teeth. Nature's intention seems to be that the second teeth should not appear until they are sufficiently formed and hardened in the jaws, so that when they come through the gum, about the eighth year, they may have acquired that durable solidity intended to last for life.

When the first teeth are removed, either by accident or design, their successors soon protrude, after this loss of the natural barrier to their premature appearance; for we may sometimes observe children of the age of six years, with their second front teeth through the gum, (those of the lower jaw particularly,) in consequence of having prematurely lost their predecessors. These teeth, sent forth before their time, I have generally remarked to be of delicate, and often defective texture; and from the shortness of their fangs, extremely liable to be lost by the slightest accident.

Some children do not begin to change their teeth until a comparatively late period. I have seen cases of this kind where the child had been without front teeth for years, some having been lost by accident, but most of them by injudicious extraction. In these cases the jaw was much contracted in its dimensions, from being so long without teeth, which are the agents employed by nature to keep the jaws extended until their formation is

completed. The premature removal of children's teeth prevents the proper development of the growing jaw, and occasions deformity of the worst description; the teeth of the two jaws cannot meet properly in mastication, and, consequently, soon destroy each other; "the expressive mouth" is disfigured by the front teeth being either deficient in number, or crowded and misplaced; and the countenance is rendered a caricature of the family likeness.

When we are content to follow the indications of nature, and assist her operations, we are generally successful; but when we would be wiser, by anticipating or thwarting her designs, the result is always calamitous. It has been the fashion to take children to persons who have assumed, at their own will, the character of surgeon-dentists, and who, through ignorance, or something worse, extract the milk-teeth by wholesale, and thus the permanent teeth are let through the gum before nature has been able to complete her work. May not this be one of the long sought-for causes of caries and early loss of teeth? a loss which entails speedy decay of health and appearance, and a curtailment of perhaps twenty years' duration of life! I am sure it is only necessary to point out these serious considerations to parents, to make them more circumspect with regard to those with whom they entrust the persons of their offspring. Why should they submit their children, in cases purely surgical, to persons who are not surgeons? Surely, in such cases, the practitioner requires a more substantial recommendation than that of being a fashionable dentist. Many of the keepers of boarding-schools contract as regularly for the services of what they call a surgeon-dentist as for those of the dancing and music-master; and thus children often have their teeth ruined before parents have any knowledge of the circumstance,

their first information on the subject being derived from the item in the bill of school-charges.

No legitimate practitioner would condescend to assist in such interested views. Children ought never to be interfered with, in cases not immediately urgent, without the express authority and direction of their parents. In the course of my experience, I have had too much occasion to notice the bad effects of ignorant and interested persons being thus let loose upon children.

The children of poor people generally extract their milk-teeth themselves, as nature intended; for when she works kindly, and it is but seldom she does otherwise, when not disturbed by an injudicious interference with her operations, the fang of the old tooth is so completely absorbed, that the child picks it off from the top of the new one, frequently reduced to a mere shell. However, when nature seems to flag or deviate from her usual regularity, much may be done by the skilful surgeon in assisting her efforts and promoting her intentions.

Regulation of the Teeth.

As it has long been universally admitted that "nature does nothing in vain," and that she now bestows on us the same number of teeth, fingers and toes that our ancestors enjoyed centuries ago; how has it happened that modern quacks have succeeded in persuading a certain class of society, that we are now encumbered with superfluous teeth, which require to be weeded out, for the benefit of the general crop? Why not also reduce the fingers and toes to a fashionable number? There would be as much propriety in the one case as in the other. A most reprehensible custom has prevailed of extracting the first

or second grinders of young persons, on the empirical pretence of making room for the other teeth, and preventing lateral pressure; and as people of rank are very properly solicitous about their children's teeth, so they have been the greater sufferers from this pernicious practice, as may be seen by the teeth of their offspring being mostly separated and apart, as if too small for the jaw, and consequently deprived of that mutual lateral support of each other so essential to their beauty, strength, and durability. Now a little reflection would show the absurdity of this barbarous practice.

Between the seventh and fourteenth years, the second, or permanent teeth, present themselves, and their disproportionate magnitude to the young face and jaws is then remarkable, for *they come through the gum at their full size*, and never afterwards increase; but it is otherwise with the jaws, which continually increase in size until the age of twenty-one to twenty-five, when the dimensions are so enlarged, that room is then made for the wisdom-teeth. The others are by this time generally accommodated and arranged as nature designed.

When an instance *does* occur of nature producing teeth actually too large for the jaw, when fully developed, recourse may then be had to extraction; for we may remark, that when a person loses a tooth at any age, the others always incline towards the opening thus made.

When young persons lose their teeth before the jaws have attained their full dimensions, contraction takes place where the teeth are gone, and the maxillary arch becomes flattened at the sides, and gives the mouth a projecting or ape-like appearance. This is the more to be regretted, as the character of barbarous nations is partly estimated by the greater or lesser projection of the mouth. When teeth

are lost on one side of the mouth, by accident or improper extraction, the flattening of that side of the face produces the peculiar expression of countenance which is now too often seen in genteel society, and which is generally the work of fashionable quacks. That contraction, and consequent deformity of the jaws, take place in the above cases of mutilation, may be seen by inspecting the mouth; when the space left by the extracted tooth will be found to be nearly obliterated, and the teeth adjoining the space almost closed up, not only at their points, but also at their fangs.

Parents should *themselves* attend to the history of their children's teeth, they should watch their progress, and be able to inform the surgeon of the coming and changing of every individual tooth in their child's mouth. The task will be found both easy and agreeable when once undertaken; and this is the more necessary if their children are taken to ignorant pretenders who have not the light of science to guide them. I am induced to make these remarks in consequence of the ignorance of school-people and nurses with regard to the teeth of the children under their care, as they can seldom give an answer to a single question on the subject that can be relied on.

There is one circumstance of the utmost importance, to which parents should attend when the second teeth appear, namely, to be certain that the six *upper* front teeth shut *outside* of the corresponding lower ones, and nature will generally do all the rest. But if the front teeth do not all close properly, no time should be lost in procuring professional aid, or the upper and lower front teeth will soon destroy each other.

Persons requiring the assistance which science alone can render, would do well, as I have already observed, to

consult, not the Court Guide, but the *College List of Surgeons*.

Third Dentition.

The dentes sapientiæ, or wisdom-teeth, are said to be "the last to come and the first to go," and there is unfortunately too much truth in the adage. I think the chief cause of this is the slow manner in which these teeth come through the gum, which not being absorbed by the pressure of the teeth, a small aperture only is made in it, which may continue without much enlargement for months, and even in some cases for years; and thus a sac is formed over the head of the tooth, receiving particles of food, &c., through the small opening, and these contents of the sac undergoing chemical decomposition, the tooth is in consequence frequently corroded and destroyed before it can emancipate itself. Between the ages of twenty and twenty-four, I suffered in my own person much pain and inflammation from these teeth on the right side, which recurred at intervals for about fifteen years, (the period of their slow growth,) and perceiving that the lower tooth rose so slowly, and that the natural opening in the gum was small, I was in the habit of getting a friend to cut away as much as possible of the gum (which was thick and hard) over the top of the tooth; yet notwithstanding all my care and attention, I found that when the tooth grew up it was dark and discoloured. The discoloration, however, soon disappeared, and this tooth, with its opponent in the upper jaw is now perfectly sound and white. The gum over the tooth of the upper jaw required no attention, as the natural opening was soon as large as the top of the tooth. My wisdom-tooth of the lower jaw on the left

side is now coming up, and although scarcely as high as the gum, which seems thick and hard as in the former instance, yet, as the natural opening seems large enough, I have not had occasion to use the lancet. With regard to my fourth wisdom-tooth, the space for which is still vacant on the left side of the upper jaw, there is yet no appearance of it. My teeth have always been perfectly sound. As this case elucidates several peculiarities of the third dentition, it will be seen that the attention of the surgeon should be directed principally to prevent the formation of a sac with an opening on the surface of the tooth, and it shows the great irregularity of the periods at which the dentes sapientiæ appear, even in the same individual.

A singular circumstance connected with this subject is the formation of teeth at advanced periods of life, as if nature were even then endeavouring to renew the body. This is very rare, and in the course of a long and extensive experience, I have only met with four cases, all of the upper jaw. One was that of a gentleman aged nearly seventy, who had lost all his upper teeth except one molar. Some years after I had supplied him with a piece of artificial teeth, two, resembling canine teeth, protruded through the gum, near the situation previously occupied by such teeth; and notwithstanding the resistance of the artificial piece to their progress, they grew with such force, as to imbed themselves in the artificial gum, so as to disturb the adhesion of the piece to the natural gum. The gentleman was therefore obliged to come frequently to me, in order to have the cavities of the artificial piece made deeper to admit the points of the new teeth, and thus prevent their pushing the artificial piece from its place; and one of them grew so fast that I was obliged to perforate

the piece to let it come quite through. The patient considering these teeth rather as an inconvenience, by their displacing his artificial teeth, solicited me to extract them, a measure to which I would never consent, as it would have been a most ungrateful return for an unusual exertion of nature's restoring powers in his behalf. The other case was nearly similar, except that this gentleman had only one canine tooth when I saw him. Both gentlemen were quite certain of having had their second canine teeth, and of having lost them. The others were two robust old ladies, whose cases were nearly similar to that of the last gentleman. I remarked that all these teeth came through the gum sideways, that is, so turned round that their inner surfaces faced the front, instead of the centre of the jaw.

Management of the Teeth.

Brush the teeth gently, with a soft brush, first over their grinding surface, then across, and lastly from the gums towards the points, particularly the inside of the lower front teeth, to clear the interstices. Should the gums bleed by moderate brushing, the operation is salutary; and in most cases where they have receded, it will cause them to grow up again and adhere to the teeth, if they are free from tartar. The judicious use of the brush is the best means of preserving the teeth and gums in a healthy and firm state. They should never be rubbed with a cloth or the finger in preference to the brush.

The teeth seem less favoured by nature than any other part of the body, for the casualties to which they are liable are never repaired by the system. They who possess good teeth should be careful to preserve them. When

they are in good order, and free from tartar, the use of a soft brush with a little simple dentifrice* occasionally, will be quite sufficient to keep them so, and with this the owner should rest satisfied. Many individuals, with fine teeth, destitute of the sense to let well alone, are so often in the hands of the dentist, that the very means by which they seek to gratify their vanity become the sources of its mortification.

Many persons get their teeth ruined from having them too often cleaned and *whitened* by certain dentists, who do not confine their operations to simply removing the tartar. And the pernicious trash that some persons will admit into their mouths, as dentifrice, is quite surprising; the rubbish being manufactured by people who, as the slightest reflection would show, neither know nor care anything about the teeth or the substances detrimental to them, their only aim being to give the nostrum a showy appearance and the requisite *scent*, on which its sale depends.

All acids and high-seasoned foods should be avoided, both being equally detrimental to the stomach and injurious to the teeth.

They who value their teeth should beware of quacking themselves with mercurial preparations, which have been, and are still too much in use, under the sanction of the late Mr. Abernethy's "Book." On his authority, many persons are accustomed to administer blue pill and rhubarb to themselves and their families as familiarly as they would common food. The rhubarb alone should satisfy

* As many persons have an aversion to the use of dentifrice, particularly where the gums are soft and unhealthy, by the advice, and with the assistance of some eminent medical friends, I have prepared a *Gingival Tincture* for strengthening the gums, and also a *Dentifrice*; the former, a compound tincture of myrrh, is intended to answer either as a substitute for, or an auxiliary to the dentifrice.

them, except when prescribed by a medical practitioner, and they would thus escape the absorption of the alveolar processes, and consequent loosening of the teeth, always attendant on reiterated doses of blue bill. As mercury, in every form, produces almost invariably these disastrous and permanent effects on the vessels and sockets of the teeth, it should never be used, except under the direct prescription and superintendence of a regular medical practitioner.

While on this subject, I would most earnestly exhort all industrious ladies, when at their needle-work, to discontinue the destructive practice of pointing and breaking off threads with their teeth, the bad effects of which would almost lead to the supposition that the teeth had been employed on the needle as well as on the thread. Nothing can be more distressing than to witness the effects produced by this pernicious practice on the teeth of young persons, who are unconscious of the consequences of such a habit, which is as unseemly as it is unclean. Teeth so used soon become notched and chipped at their points, and often split, and the result is that they are in a short time destroyed or totally lost at a very early age. Parents and governesses should attend to this matter at the very first, and by insisting on the employment of the scissors instead of the teeth, they will prevent the baneful practice from becoming a habit. All persons who employ sewing-girls, should, also, for the sake of humanity, exercise similar authority in this respect.

Persons who have lost their front teeth soon learn from necessity to point their threads with the scissors. I think a little apparatus might be contrived, to be attached either to the table or to the fingers of the left hand, for the purpose of pointing and cutting off threads, so as to supersede

the necessity for using either the teeth or the scissors for that purpose.

It is a common remark, among medical men, that tailors and dressmakers have bad teeth. This is generally supposed to be a result of their sedentary mode of life; but there are many employments equally sedentary that do not produce such an effect, and I have no doubt but that the true cause is the one I have just pointed out.

Except in the upper ranks of society, the cleanliness of the mouth and teeth is, in this country, strangely neglected. How frequently do we see respectable tradesmen allow their teeth to become disgustingly dirty! while the negroes are particularly careful of them. Clean teeth are a luxury that the poorest man may indulge in, if inclined, and surely any man who studies comfort and appearance so far as to shave himself, and comb his hair but once a week, might at the same time take the additional trouble of brushing his teeth with a little magnesia, which, besides procuring him the comfort of having a clean mouth, may also be the means of averting much pain, and the subsequent loss of his teeth.

TOOTHACHE.

This malady (by no means a trifling one) I consider to be a physician's ease. It is scarcely equalled in intensity of pain, or rather agony, by any other to which the human body is liable. It is often the mere symptom of serious affections of the head and stomach, or of the nerves themselves, as in neuralgia or *tic douloureux*, requiring considerable attention to discover and remove the exciting cause. Happily, in a great majority of cases, the malady is local, being caused by exposure of the nerves in decayed teeth and stumps, and admits of remedy by topical applica-

tions to the parts affeeted. Its violenee renders the patient eager to try any remedy whieh may be proffered for its alleviation; hence many young persons (for it is the young that are ehiefly affeeted with toothache) have their sound teeth ruined by their endeavours to alleviate the pain of a diseased one; and the same remedy, whieh would be harmless, if not effieaeious, in the hands of a skilful medical practitioner, when employed injudieiously by the patient himself, or by an empirie, may not only prove ineffeetual, but oecasion the most pernieious eonsequenees. This is the ehief misfortune to whieh the teeth of persons resident in the country are liable. I am frequently eonsulted by persons whose teeth have onee been beautiful, but whieh have in this manner been entirely ruined, all the front teeth (usually the most durable) exhibiting black spots of deeay; and on inquiring the cause of this melaneholy sight, have invariably found that it has arisen from the use of stimulants to cure the toothaehe, particularly oil of thyme, oil of eloves, rosemary, &c., whieh are generally reeommended as speeifics. A knowledge of the misehief done by these nostrums, has indueed me to point them out, in order that persons residing at a distanee from medical adviee may avoid them, and avail themselves of the following simple remedies.

In slight eases the best topical application is a little lint or cotton soaked in laudanum (tineture of opium) or eompound tineture of eamphor repeatedly applied to the tooth or stump*. The general treatment is the same as in cases of eold, viz., low diet, vegetable laxatives, sleeping with

* I have for many years prepared an odontalgic remedy from anodyne medicines, that is generally successful in removing local toothache, and which I find particularly serviceable in allaying the pain in hollow teeth and stumps, preparatory to their being properly stopped. Many apothecaries keep a tincture for toothache.

flannel round the jaws and ears, and bathing the feet in warm water, to promote perspiration.

In severe and protracted cases, hold the mouth over hot water. Cloths wrung out of it, with a handful of camomile flowers wrapped in them, may be applied to the cheek. Should the pain be accompanied with throbbing, it indicates that the inflammation is about to terminate in suppuration, which will be greatly promoted by warm fomentations. On suppuration taking place, the patient is generally relieved, and the matter escapes either by the socket of the tooth, or through the medium of a gum-boil.

In cases where the malady is caused by a decayed tooth or stump, which is *useless in mastication*, the sooner it is extracted the better, for besides the continual liability to pain, it is apt to affect the sound teeth, as well as to injure the breath and stomach. The efforts of nature should be assisted by the extraction of dead teeth and stumps, which would put an end to the irritating process of exfoliation going on in parts so near the sensorium.

In chronic and rheumatic cases, in addition to the above-mentioned remedies, a piece of ginger or pellitory of Spain may be kept in the mouth. When the pain subsides, stop the tooth with bees' wax, or (for *permanence*) with gum-mastic, softened in the mouth or in warm water, which by shielding the nerve from the external air, will prevent irritation : all corrosive acids, as vitriol, aquafortis, spirit of salt, &c. are improper applications, their destructive qualities endangering the other teeth ; so, for the same reason, are all essential oils, as before mentioned.

The only principle on which cure or alleviation can be effected, is the causing, by means of *warm stimulants*, a flow of saliva from the mouth, or deadening the sensi-

bility of the nerve by the application of opiates, as already noticed.

The preventive treatment consists in keeping the hollow teeth well stopped, avoiding the use of acids and pepper, particularly cayenne; guarding against cold, and keeping the feet at all times warm, with due attention to the state of the bowels. When the pain has ceased and inflammation subsided, and where the aid of a surgeon can be obtained, the hollow tooth should be properly stopped.

With regard to the toothache, so common in the early stages of pregnancy, my experience leads me to infer that sound teeth are seldom, if ever, affected by this cause; it is only the general stimulus discovering a diseased tooth or stump, which perhaps had not been before observed. Pregnancy can never occasion caries, and to attribute the loss of sound teeth to the fulfilment of a function highly favourable to health, would be to place nature in contradiction to herself.

Preservation of the Teeth by Mechanical Means.

As long as appearances are preserved by the presence of the front teeth, the loss of the side teeth, or grinders, is frequently viewed as a matter of little importance. This is a great error, for it is the presence of the grinders which keeps the mouth sufficiently open to prevent the front teeth from coming in contact during mastication. When, therefore, the grinders are lost, and their places are not supplied by artificial means, the front teeth soon become either worn away, or loosened and pushed from their sockets.

Few persons are aware of the cause of losing their front teeth. Some attribute the loss to a local defect in the teeth themselves, and others to constitutional causes. They

seldom or never reflect that the front teeth were not intended, and hence, are not adapted for masticating purposes, which invariably destroy them. The entire process of mastication belongs to the grinders, and the only function which the front teeth are intended to perform is comprised in the word "cutting," which their name, *incisores*, implies.

When even a single grinder is lost, the whole of the teeth on that side of the jaw are weakened by the breach which it leaves, and which deprives them of mutual lateral support, and renders them apt to be pushed from their proper perpendicular position, towards the opening, by the opposite teeth. But this is not all; for as soon as a tooth in one jaw loses its masticating opponent in the other, it begins to protrude from its socket, loosen, and ultimately fall out. So that the loss of one tooth, by rendering its opponent in the other jaw useless, amounts to the loss of two.

When the teeth remaining for mastication are too few in number to sustain the force of the jaws, they are soon destroyed, by being either forced into their sockets, so as to produce disease and absorption, or crushed and broken, occasioning grievous pain, followed by the total loss of such teeth. The front teeth being unprotected, through the loss of the grinders, are soon destroyed in the way before described, and proper mastication being now impossible, derangement of the digestive functions ensues, attended by privation of comfort and loss of health.

Fortunately, the whole of this mischief may be remedied, and the greater part of it prevented, by the timely adoption of artificial teeth. When any of the side teeth are lost, their places should be immediately supplied by properly constructed artificial teeth, so as to prevent the

others from slanting towards the opening left by those which are lost. Artificial teeth, by meeting the natural teeth in the opposite jaw, preserve them by preventing their protruding from their sockets; and mastication being thus restored, health is recovered and preserved. The artificial teeth, by preventing the jaws from shutting too close, preserve the front teeth, which would, otherwise, be destroyed, by meeting together in the process of mastication.

The object in supplying artificial teeth has, hitherto, been too generally confined to mere show, at the expense of the other teeth; whereas, the whole aim should be to preserve the remaining teeth, and restore mastication, which secures comfort and health. When many teeth are lost, all tampering with the remainder, in the shape of picking and filing, can only increase suffering and hasten the loss of teeth so tampered with. The operator must be perfectly aware of this; but as the continual suffering produces constant visits, and unmerited fees, to the picker, these unhappy patients are the most profitable to him. Such practitioners, instead of pointing out the proper artist capable of affording the only real relief, strenuously advise their patient dupes *against* the adoption of preservative pieces of artificial teeth; for mere tooth-pickers, being incapable of supplying this remedy themselves, know that delusion would be dispelled, and their mal-practices exposed, if their victims fell into the hands of a competent mechanical artist.

IMPORTANCE OF THE TEETH.

The pounding of our food could be much more effectually performed in a mortar with a pestle than by the

best set of teeth. But such a process would not answer the purposes of digestion and nutrition, or else persons who have lost their *molars* might still preserve their health and plumpness by having their food minced and pounded before being brought to table. Both theory and experience show, however, that we are subject to certain laws with regard to our animal economy, and that the division of our food to serve the purposes of health, must be effected in the mouth by the action of our own jaws. It is this exercise of our organs of mastication, effected either by natural or artificial teeth, that constitutes the principal satisfaction and pleasure in eating. Count Rumford recommended small pieces of *hard bread* to be used in soup for the poor, "in order to increase and prolong the enjoyment of eating." This is further corroborated by young persons preferring to crack nuts, &c. with their teeth. Most people, whose teeth are serviceable, are fond of masticating the crust of bread, and picking bones; and much lament the deprivation when their teeth are lost. People often speak in raptures of the satisfaction and pleasure of being able to "crunch and chew" apples, &c. with artificial teeth, after being long deprived of that enjoyment by the loss of their own molars.

The teeth are, therefore, parts of much greater importance in our animal economy, and more essential to our health and happiness, than most people are aware of. During mastication saliva is secreted in an increased quantity, which, mixing with the food, enables the gastric fluid to effect the process of digestion in a healthy manner. When this is imperfectly performed in consequence of the loss of teeth, indigestion, and a variety of diseases, are the consequence. Besides this, there is usually great anxiety of mind, arising from the change in personal appearance and

the loss of comfortable feeling, which subjects the unhappy sufferer to "all the ills that flesh is heir to;" and it is not to be doubted that multitudes of both sexes are prematurely hurried out of existence, after much complicated mental and bodily suffering, originating in this cause alone.

Persons differently constituted will of course suffer in different ways, and in various degrees both in mind and body, but all must suffer from the loss of their teeth. When food imperfectly masticated passes into the stomach, instead of the natural process of healthy digestion, it undergoes chemical decomposition, occasioning secretions inimical to health, and entailing maladies of the worst description.

The loss of teeth is not only the cause of the loss of health and of comfortable feeling, but the energy, tone, and sweetness of the voice are thus destroyed, while the change of the physiognomy is often such as to occasion the most poignant distress of mind, not only to ourselves, but to those by whom we are esteemed. How often is a fine face changed into an object of disgust from this cause alone! Delicate minds become dejected and reserved, while others are rendered morose and misanthropic, and feeling wretched and comfortless within themselves, impart their unhappiness to all around them. In ARTIFICIAL TEETH, *constructed on sound philosophical principles, and judiciously adapted to the peculiar circumstances of the case,* the unhappy sufferer finds a complete remedy for all the evils attendant on his loss. With such artificial teeth the power of mastication is perfectly restored, the beneficial effects of which are soon apparent in the improved health, spirits, and comfortable feeling of the individual, to which the renovation in personal appearance greatly contributes.

The Author's Mode of Supplying Lost Teeth.

Our personal comforts and conveniences advance with the progress of knowledge; and to provide against the accidents of life, to smooth and solace the stealthy advance of age, has been the benevolent study of the philosopher and philanthropist, and it cannot be denied but that we now enjoy many valuable adventitious aids for counteracting and remedying the frailties of our nature, of which our ancestors had no avail. The deformities of club-feet and squinting are now under the control of surgical science. The protruding chin, sunken cheeks, and the pitiable imbecile appearance of lips falling into the mouth from the loss of teeth, can now be remedied by dental science.

I here beg leave to describe the method I have long pursued in remedying deficiencies of the teeth, from one to a complete set*, which has been found to answer all the purposes of the original teeth in mastication, articulation, and appearance. These artificial teeth can be taken out and replaced by the wearer with the greatest facility, and will remain perfectly secure in their places, by *capillary attraction* and the *pressure of the atmosphere*, alone, *which occasions a natural adhesion to the gum*, and renders wholly unnecessary, pinning to stumps, tying, twisting-wires, fastening clasps, springs, or any attachment whatever to the remaining teeth, and consequently, instead of injuring, affords them support, so that the wearer soon becomes

* As some persons are under an apprehension that they must be put to great pain and inconvenience by the removal of teeth and stumps, and other painful operations, before they can be supplied with artificial teeth, I feel it incumbent on me to remove this error, so far as it relates to my system, which requires no removal of teeth or stumps, or any pain or inconvenience whatever, any more than if the article in question were an ordinary piece of dress.

unconscious that he uses artificial teeth. These improvements enable me to supply whole or half sets without the spiral springs which are usually attached to such pieces.

The mechanical friction and elastic strain on the teeth, and particularly the galvanic influence exerted on the mouth and teeth in contact with metallic plates, producing and keeping up a morbid irritability of the mouth, tongue, and fauces, often amounting to constriction, are entirely avoided by the method described in this work, as the material which I use is the tusk of the hippopotamus (either with or without natural teeth*), the only innocent and tasteless substance that feels comfortable and congenial to the mouth.

Nothing can be more unnatural and ungenial to the mouth than the gum being covered with a plate of *metal*, which alters the taste of every substance that enters the mouth; but such tinsel work can be easily and quickly manufactured by common workmen, being struck up with the *hammer* on a mould, which is not the work of an artist, but that of a labourer. It is an *artist* that engraves a DIE, but only a labourer, or the steam-engine, that strikes the coin. Most of the dental pretenders send their imperfect models to the London manufacturers of "false teeth," who supply not only the quacks in town and country, but even those in the colonies. As such spurious work, got up by proxy, can never fit the parts in the manner required, so it can never have the least adhesion or affinity to the gum, and must therefore be retained

* The things called mineral, or Jews' teeth, are now plentifully manufactured of porcelain; but they always look like what they are, and can never be mistaken for teeth. Placed in front of the dark cavity of the mouth, the unnatural material has, necessarily, a very different appearance in day and candlelight, and, by acting as a whetstone on any of the natural teeth it comes in contact with, soon wears them away.

in its place by hooks or clasps fastened to the remaining teeth, which are soon worn away and drawn from their sockets. When this is accomplished and nothing remains on which to fasten the artificial teeth, they are then swung or suspended in the mouth by SPIRAL SPRINGS, which a certain mineral-tooth quack (in praising spiral springs) justly compares to *the chains of a drawbridge*. Spiral springs torture and distort the countenance, and the united effects of galvanism (produced by the continual presence of metal in the mouth) and the unnatural strain of the springs, induce a disposition to paralysis of the muscles of the lower jaw.

As nothing but vegetable and animal substances are suited to the personal wants of man, as food and raiment, and as neither mineral nor metallic substances could be endured on the external surface of the body, how much more uncomfortable must these substances feel in the mouth! The gums, in common with other parts of the body, are continually giving off exhalations, which the spongy nature of bone is calculated to absorb and disperse, while a plate of metal either suppresses these exhalations altogether, or condenses them on its surface, and renders them pernicious; and thus a disposition to paralysis of the parts is induced, the symptoms of which may often be perceived in such cases, in an imperfect power of speech, and a sense of weight and falling of the lower jaw, which is greatly aggravated by the pressure of spiral springs.

The vaunted cheapness and durability of porcelain teeth on metal plates is all a fallacy; but supposing it were true, might not the same be said of a japanned tin-plate hat, which might be cheap in purchase and durable in wear; but being neither of vegetable nor animal material, it would be liable to the same objections as stated above?

PHILOSOPHICAL PRINCIPLES ON WHICH ARTIFICIAL TEETH ARE FORMED.

To give entire ease and comfort to the wearer, the artist must be capable of engraving his work to fit the gum so perfectly *air-tight*, that it shall adhere and remain securely firm in its place for the purposes of mastication, &c., by the mere force of *capillary attraction* and the *pressure of the atmosphere*.

These principles have been frequently described, yet few people give credence to them as applied to artificial teeth, although nothing is more just, correct, and natural. The common water-pump acts on the latter principle, and there is no other on which artificial teeth can be constructed that will not soon destroy the remaining teeth.

In the introduction of anything new in science, there is wanting a corresponding language by which it may be expressed, in order that it may be described on paper so as to be understood by the reader. Capillary attraction and atmospheric pressure may be thus explained.

Capillary attraction is the principle by which a fluid is strongly attracted between closely fitting surfaces, and the closer the surfaces approach each other, the more strongly do they attract the fluid, which thus expels and excludes the air. It is by capillary attraction that water rises into and fills a sponge.

Atmospheric pressure, which was formerly explained by means of the axiom, that *nature abhors a vacuum*, is owing to the weight of the atmosphere, which causes it to bear on all bodies near the surface of the earth with a pressure of about fourteen pounds on each square inch.

On my principle of supplying a deficiency of the teeth, the artificial piece being fitted close to the gum, the natural

moisture of the mouth is affected by capillary attraction, the moment the piece is introduced into its place; and the moisture being drawn in, between the piece and the gum, the intervening air is driven out, and being thus excluded, the atmosphere acts with a force in proportion to the extent of the surfaces in contact, in keeping the artificial piece in its place. This force, even on a small piece, is considerable, and on large pieces frequently exceeds thirty pounds; yet even in these cases the wearer feels no pressure beyond secure adhesion. The piece itself seldom weighs above half an ounce, and is easily removed, at the pleasure of the wearer, by merely raising one of its extremities with the tongue.

One of the most familiar instances of the joint effects of capillary attraction and atmospheric pressure is perhaps that exhibited by the school-boy with what is called the *sucker*. This toy consists of a string passed through the centre of a piece of thick leather soaked in water, which being pressed on a large stone, adheres to it so firmly that the stone may be lifted up and carried away by it.

Pieces of teeth made of the tusk of the hippopotamus feel in every way congenial to the mouth, and cannot be distinguished by the tongue from the natural gum and teeth; and being fitted in the manner just described, adhering to the *gum only*, afford support to the remaining teeth, which are let into grooves accurately formed in the piece for their reception. This prevents toothache, and other painful sensations, by shielding tender teeth and stumps from change of temperature and extraneous matters. The jarring of the *front teeth* on each other is obviated by the piece preventing the mouth from shutting too close. Mastication and articulation are restored, and the premature appearance of age and deformity completely

removed. When a few weeks have familiarised the wearer to the change, he becomes almost unconscious that he uses artificial teeth; and as cheerful spirits return with health and comfortable feeling, happiness, "the end and aim of our existence," is restored, and life prolonged and enjoyed, perhaps, ten or twenty years beyond the period to which it would otherwise be limited.

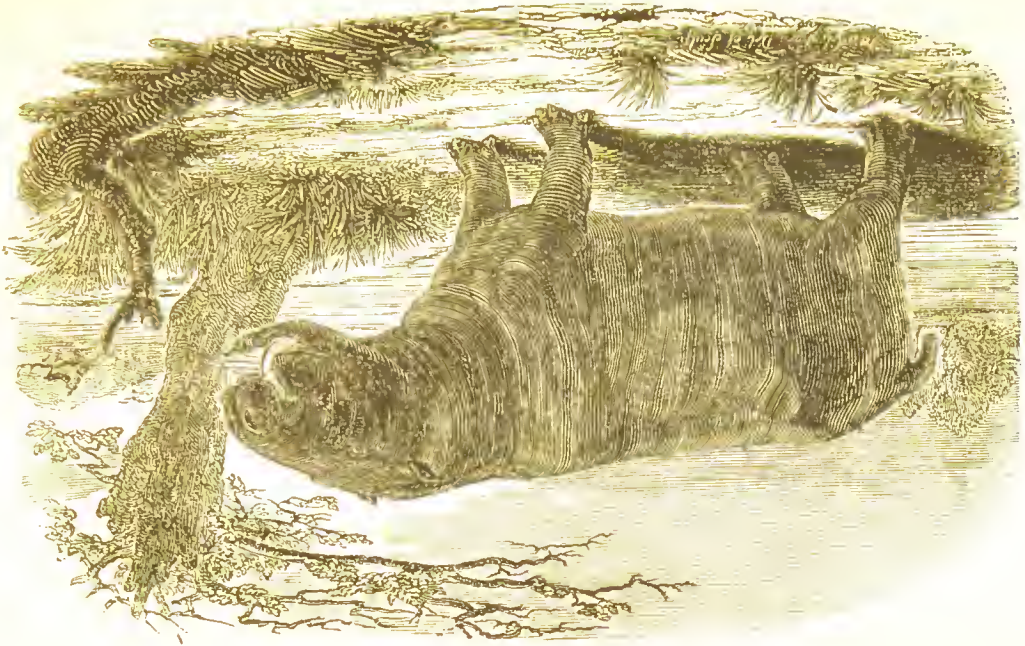
IT IS THE DUTY OF ALL, AND THE WISH OF THE BENEVOLENT, TO PRESERVE THEIR HEALTH AND PERSONAL APPEARANCE FOR THE SATISFACTION OF THOSE WHO LOVE THEM.

THE HIPPOPOTAMUS.

The annexed engraving is a representation of the Hippopotamus, taken from the stuffed specimens in the British Museum. The great interest attached to this animal, on account of the superiority of its tusks over every other material that can be used for the construction of artificial teeth, seems to render some account of him necessary in order to satisfy public curiosity with regard to his habits and peculiarities.

The following account of this animal is extracted from the *Conversations Lexicon*.

"There is but one species of the Hippopotamus now existing, though the fossil remains of four other kinds have been discovered. He is fully equal to the Rhinoceros in size and not less formidable. He has four cutting-teeth in each jaw; those in the lower jaw straight and pointing forward nearly horizontally, the two middle ones being the longest. The canine teeth, or tusks, are four in number; those in the upper jaw short, those in the lower very long and obliquely truncated. They are sometimes two feet in



length and weigh upwards of six pounds. These tusks are in great request with the makers of artificial teeth, as they are not subject to turn yellow. In figure the Hippopotamus more closely resembles an unwieldy ox than any other animal. The male has been known to be seventeen feet in length, seven in height, and fifteen in circumference. The head is very large, being three and a half feet long. The Hippopotamus is confined to Africa, and abounds most in the rivers and lakes of Abyssinia, Nubia, and Upper Egypt. It is nearly extirpated at the Cape of Good Hope. It appears to have been well known to the ancients. Several of them were exhibited at Rome. Scaurus, during his ædileship, had one of them, and five crocodiles, in a temporary lake, and Augustus produced one in his triumph over Cleopatra. The Behemoth of Job is considered to be the Hippopotamus by most commentators. The Egyptians revered it as a divinity, and so do the Negroes of Congo, Elmina, &c. It would be one of the most formidable of quadrupeds were its disposition ferocious; but it is mild and gentle, except when under great provocation. When excited his power is dreadful. He has been known to destroy boats with his teeth, or upset them by raising them on his back. There is no doubt but that he can be tamed. Belon says he saw one kept in a stable which showed no disposition to escape, or to commit mischief. He cannot move very swiftly upon land. When pursued he makes for the water, and plunging in headforemost, sinks to the bottom, where it is said he can move along in the same slow and stately pace as in the open air. The female is often seen in the rivers with her calf on her back. She suckles it like a cow. The males sometimes have terrible encounters with each other, in which one or both are killed on the spot. The Hippopotamus lives entirely on

vegetable food, in search of which he quits the waters, and ranges along their banks, committing wide devastation through all the adjoining country. On the banks of the Nile he often defeats all the hopes of the husbandman; whole fields of grain and sugar-cane are destroyed, not only by his enormous appetite, but by being trampled down and destroyed by his stupendous bulk. The flesh is eaten by the Africans; the Hottentots and others are extremely fond of it. The choice pieces are said to be the gelatinous parts of the feet, and the tongue. They are captured in various ways. The Hottentots take them in pitfalls, or shoot them with tin balls. They are also harpooned, but this is a dangerous practice."

The Hippopotamus has thirty-eight teeth in all, of which twenty are in the upper jaw, and eighteen in the under one; there being only twelve grinders in the latter, whilst there are fourteen in the former. The tusks that are brought to this country weigh from half a pound to seven and eight pounds each, and in rare instances even ten and twelve pounds. The best sort for the fabrication of artificial teeth are such as weigh above five pounds, and among these the most eligible are fine and close in the grain, and fresh in condition, such as those of the slaughtered animals which retain their natural oily sap, like transparent ivory. I find the specific gravity of the best kind to be 1·918 ounce to the foot cube, or nearly double that of water, that of ivory being 1·825. The larger the tooth the harder and denser it is in substance, and consequently the more durable in wear, and the better for retaining its colour. One that I now happen to be using weighs six pounds three ounces, and measures two feet seven inches in length, and eight and a half inches in circumference,

in the thickest part. Such a tusk would formerly have cost three guineas a pound; but the high price has been somewhat reduced by causing greater exertions to be made to supply the demand*. As the tip and the hollow end, which is often nearly half the length, are almost valueless, this tusk will furnish only five full jaw-pieces, which is the principal object to be obtained, each weighing about half an ounce when finished. The weight of the whole tusk is thus reduced to about two and a half ounces, when worked up, and all the rest is waste. This brings the prime cost of the material to nearly double that of gold plate, when used as a substitute in the construction of artificial teeth, in which there would be little or no waste at all. But the cost of the material is hardly worth calculating in a work of art, the real value of which must ever consist in its perfect adaptation to the purpose for which it is intended.

* Teeth inferior in the above qualities may be purchased from eighteenpence per pound upwards; but artificial teeth should never be constructed of any but the very best tusks, which will, on many accounts, be found to be the cheapest in the end.

APPENDIX.

As the chapter on the Extraction of Teeth, and on the Instruments used for that purpose, is chiefly intended for the perusal of medical readers, I have purposely placed it in an Appendix at the end of this little work, that it may be omitted by such non-medical readers as may think the subject more disagreeable than interesting.

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